



Original article. The influence of teacher competency, parenting styles, and social media on students' physical literacy and physical activity. Vol. 12, n. ° 3; p. 1-24, July 2026.

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The influence of teacher competency, parenting styles, and social media on students' physical literacy and physical activity

La influencia de la competencia docente, los estilos de crianza y las redes sociales en la alfabetización física y la actividad física de los estudiantes.

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Abstract

The aim of this research is to develop a theoretical model that explains the relationship between teacher competence, parenting style, social media, physical literacy, and student physical activity. This study used a quantitative approach with a non-experimental design, involving 620 junior high school students aged 11-16 years (318 boys and 302 girls). Variance analysis (ANOVA) showed no significant differences in physical literacy by age and gender, as well as in physical activity by age, but there were significant differences in physical activity by gender, where male students were higher than females. A theoretical model that connects the variables of teacher competence, parenting style, social media, physical literacy, and physical activity was tested with Structural Equation Modeling (SEM) resulting in a model that corresponds to empirical data ($Cmin/df = 3.0$; CFI = 0.947; GFI = 0.943; AGFI = 0.920; RMSEA = 0.057). The results showed that teacher competence, parenting style, and social media had a direct effect on physical literacy and indirectly affected physical activity through physical literacy, while physical literacy played a role as a mediator that affected students' physical activity.

Keywords: teacher competence; parenting styles; social media; physical literacy; physical activity

Resumen

El objetivo de esta investigación es desarrollar un modelo teórico que explique la relación entre la competencia docente, el estilo de crianza, las redes sociales, la alfabetización física y la actividad física de los estudiantes. Este estudio utilizó un enfoque cuantitativo con un diseño no experimental, en el que participaron 620 estudiantes de secundaria de 11 a 16 años (318 niños y 302 niñas). El análisis de varianza (ANOVA) no mostró diferencias significativas en la alfabetización física por edad y sexo, así como en la actividad física por edad, pero sí hubo diferencias significativas en la actividad física por sexo, donde los estudiantes varones fueron más altos que las mujeres. Se probó un modelo teórico que conecta las variables de competencia docente, estilo de crianza, redes sociales, alfabetización física y actividad física con Structural Equation Modeling (SEM) dando como resultado un modelo que corresponde a datos empíricos ($Cmin/df = 3.0$; CFI = 0,947; GFI = 0,943; AGFI = 0,920; RMSEA = 0,057). Los resultados mostraron que la competencia docente, el estilo de crianza y las redes sociales tenían un efecto directo en la alfabetización física e indirectamente afectaban la actividad física a través de la alfabetización física, mientras que la alfabetización física desempeñaba un papel como mediador que afectaba a la actividad física de los estudiantes.

Palabras clave: competencia del profesor; estilos de crianza; redes sociales; alfabetización física; actividad física



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Introduction

The rising prevalence of obesity represents one of the most pressing public health challenges globally, with children increasingly exhibiting lower physical activity levels than previous generations (Koliaki et al., 2023). Over the past two decades, there has been a notable decline in physical activity among children, largely attributed to decreased opportunities for active outdoor play and increased sedentary behavior, particularly screen time (D'Anna et al., 2024). The 2022 Global Status Report on Physical Activity highlights that 27.5% of adults and 81% of adolescents worldwide do not meet the World Health Organization (WHO) recommendations for physical activity (Organization, 2022), a trend observable in both developed and developing countries like Indonesia. This decline has serious implications not only for individual health but also for broader societal and healthcare systems, as physical inactivity contributes significantly to rising rates of obesity and related chronic diseases among children and adolescents (Choi et al., 2024).

Addressing this issue requires interventions that foster sustained increases in physical activity from childhood through adolescence (van Sluijs et al., 2021). A promising approach involves promoting physical literacy, a multidimensional concept encompassing motivation, physical competence, confidence, and understanding that supports lifelong engagement in physical activity (Carl et al., 2022). Countries with declining physical activity levels have begun integrating physical literacy into policies and programs to reverse these trends, with notable progress in Canada and the UK where the International Physical Literacy Association (IPLA) supports such efforts (Carl et al., 2023). Physical literacy not only improves physical and mental health outcomes but also enhances life satisfaction, reduces stress, and lowers risks of conditions like high blood pressure and obesity (Ma et al., 2021). Its integration into school curricula, teacher training, parental involvement, and social media-based interventions has shown potential to effectively boost children's physical activity and fitness levels (Garbacz et al., 2017).

The roles of teacher competence, parenting styles, and social media are critical in shaping children's physical literacy and activity habits (Vasiou et al., 2023). Research



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indicates that support from teachers, parents, and peers significantly influences various dimensions of physical literacy, including sports knowledge, emotional well-being, and athletic ability, with peer support often being the strongest predictor (Hoferichter et al., 2021). Teachers, especially physical education professionals, can foster positive attitudes and skills in students, while authoritative parenting styles create supportive environments that encourage active lifestyles (Subramaniam & Mercier, 2017). Moreover, social media can serve as a powerful tool both to promote and educate about physical activity (Stellefson et al., 2020). Despite evidence from multiple studies examining these factors individually, there remains a need to develop integrated models that combine teacher competence, parenting styles, and social media influences to create synergistic interventions for enhancing physical literacy and physical activity among school-age children (Marquez et al., 2020). Such models can guide practical applications that ultimately boost sustained physical activity and combat the decline in children's health worldwide (Salvo et al., 2021).

This study aims to investigate the effects of teacher competence, parenting styles, and social media on physical literacy and physical activity in school-age children and to test a structural model describing these influences in relation to empirical data. The findings will provide valuable insights for designing comprehensive, practical interventions to support lifelong active and healthy lifestyles in children.

Methodology

This study is a non-experimental study with a survey method involving 620 junior high school students domiciled in Sidoarjo, Indonesia (318 males and 302 females, aged 11–16 years) who filled out a questionnaire in Google Form or paper format after obtaining the principal's permission and ethical clearance; instruments include PPLI (9 items, Likert scale 1–5, validity 0.565–0.724, $\alpha = 0.893$) for physical literacy, PAQ-C (validity 0.198–0.723, $\alpha = 0.835$) for physical activity, PJOK teacher competency assessment (15 items, validity 0.535–0.772, $\alpha = 0.941$), APA-FFQ for parenting style (40 items, validity 0.201–0.593, $\alpha = 0.904$), and 17 items on social media use related to physical literacy (validity 0.237–0.519, $\alpha = 0.807$); all questionnaires were verified for



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completeness before being analyzed descriptively and inferentially using SPSS (mean difference test of two groups, regression) and SEM using AMOS to test model suitability and structural relationships with goodness-of-fit criteria such as $GFI \geq 0.90$, $AGFI \geq 0.90$ and $RMSEA \leq 0.08$.

Results

The results of the study will be described using statistical analysis techniques, namely descriptive statistical analysis, difference tests based on age and gender groups, and theoretical model testing. In the results of this study, it is explained that in the theoretical model construct which is the main analysis of this study, 39 variables are involved, consisting of 16 observed variables and 23 unobserved variables; as well as 21 exogenous variables and 18 endogenous variables.

Descriptive Statistical Analysis

Table 1. Descriptive Analysis of Teacher Competency Variables

Code	Variable	Mean	Std. Deviation
TC.1	Knowledge	4.24	.626
TC.2	Skill	4.29	.610
TC.3	Professional	4.31	.629

Teacher competency variables (table 1) have three indicators, namely knowledge, skills and professional. Of the three indicators, the aspect of professional competence has achieved the highest average, followed by the aspect of skills, while the variable knowledge has obtained the lowest value.

Parenting styles variables (table 2) there are four indicators, namely authoritarian, authoritative, permissive, and neglect. The analysis results showed that authoritative parenting had the highest mean score, indicating that this parenting style was most dominantly applied by parents in the study population. This finding suggests that parents tend to combine clear control with emotional support and open communication with their children. Permissive parenting showed a moderate level of implementation, indicating that some parents grant their children considerable freedom, but this does not become the dominant parenting style. Authoritarian parenting showed a relatively low mean score, indicating that parenting approaches emphasizing strict control and obedience without dialogue are not widely applied. Neglectful parenting recorded the lowest mean score,



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indicating that parenting styles characterized by low parental involvement and supervision are relatively rarely applied.

Table 2. Descriptive Analysis of Parenting Styles Variables

Code	Variable	Mean	Std. Deviation
PS.1	Authoritarian	2.34	.745
PS.2	Authoritative	3.60	.739
PS.3	Permissive	2.84	.609
PS.4	Neglect	2.21	.704

Table 3. Descriptive Analysis of Social Media Variables

Code	Variable	Mean	Std. Deviation
SM.1	Access	3.94	.048
SM.2	Duration	3.93	.048
SM.3	Information	3.59	.040

In the social media variable (table 3), there are three indicators, namely access, duration and information. The Access aspect (SM.1) obtained the highest average value, indicating that respondents have a relatively high level of ease and frequency of social media access. The Duration of Use aspect (SM.2) also showed a high average value, reflecting that respondents spend a significant amount of time using social media. Meanwhile, the Information Aspect (SM.3) is in the moderate to high category. These findings indicate that respondents are quite active in accessing and utilizing social media as a source of information, although the intensity is relatively lower compared to the access and duration dimensions.

Table 4. Descriptive Analysis of Physical Literacy Variables

Code	Variable	Mean	Std. Deviation
PL.1	Knowledge	4.33	.689
PL.2	Attitude	3.63	.715
PL.3	Physical Competence	3.70	.727

The physical literacy variable (table 4) has three indicators, namely knowledge, attitude, and physical competence. The analysis results show that the Knowledge aspect (PL.1) obtained the highest average score, indicating that respondents have a strong



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understanding of the concepts, benefits, and principles of physical activity. Physical Competence (PL.3) is in the moderate to high category. This finding indicates that respondents assess their physical abilities and motor skills as being at a fairly good level. Meanwhile, the Attitude aspect (PL.2) is also in the moderate to high category. This indicates that respondents have a relatively positive attitude towards physical activity, including motivation, interest, and readiness to engage in physical activity on an ongoing basis.

Table 5. Descriptive Analysis of Physical Activity Variables

Code	Variable	Mean	Std. Deviation
PA.1	Frequency	2.01	.675
PA.2	Intensity	2.87	.829
PA.3	Physical activity at school	2.40	.642
PA.4	Physical activity outside school	2.65	.972

Physical activity variables (table 5), there are four indicators used, namely frequency, intensity, physical activity at school and physical activity outside school. The analysis results show that the Frequency of Physical Activity (PA.1) aspect obtained the lowest mean value, indicating that respondents relatively rarely engage in physical activity regularly. This finding reflects the low regularity of physical activity in the respondents' daily lives. The Intensity of Physical Activity (PA.2) aspect is in the low to moderate category. This indicates that when respondents engage in physical activity, the intensity level achieved tends to be suboptimal or does not meet the recommended physical activity intensity. Furthermore, the Physical Activity at School (PA.3) aspect indicates that respondents' involvement in structured physical activity in the school environment is still limited, which is likely influenced by factors such as the curriculum, facilities, or time spent on physical education lessons. Meanwhile, the Physical Activity Outside of School (PA.4) aspect is in the low to moderate category. The relatively higher standard deviation value for this aspect indicates a significant variation in physical activity behavior outside of school among respondents, which may be influenced by differences in the environment, family support, and access to sports facilities.



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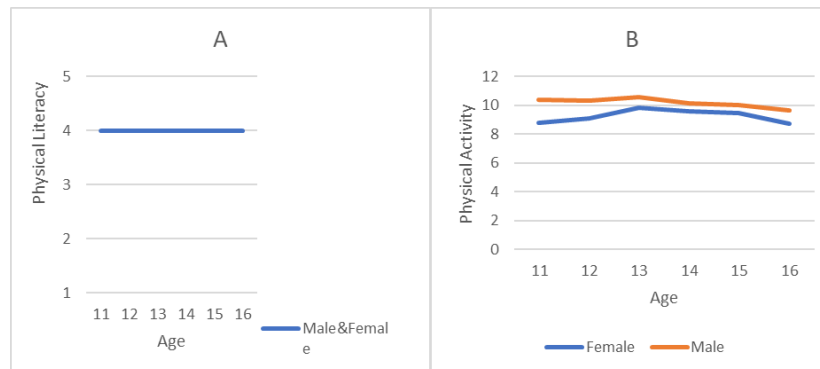


Figure 1. Relationship between Physical Literacy and Age (A) Relationship between Physical Activity and Age (B)

Age Group Difference Test

Based on data analysis (table 6), Based on data analysis (Table 6), physical activity levels in 11- and 12-year-old students tended to be similar, with a slight increase in physical activity occurring at age 13. Conversely, physical activity decreased between ages 14 and 16. Meanwhile, overall, there was no difference in physical literacy among students between ages 11 and 16.

Table 6. Physical Activity and Physical Literacy by Age

Variable/Age	N	Mean	Std. Deviation
Physical Activity 11	13	9.77	2.006
12	89	9.63	2.102
13	220	10.21	2.312
14	178	9.88	2.376
15	110	9.74	1.943
16	10	9.30	2.830
Total	620	9.92	2.247
Physical Literacy 11	13	3.69	.855
12	89	3.93	.560
13	220	3.87	.657
14	178	3.85	.557
15	110	3.89	.611
16	10	3.90	.876
Total	620	3.87	.615



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Table 7. Results of the Difference Test between Age Groups

		Sum of Squares	df	Mean Square	F	Sig.
Physical Activity	Between Groups	34.095	5	6.819	1.355	.240
	Within Groups	3090.189	614	5.033		
	Total	3124.284	619			
Physical Literacy	Between Groups	.891	5	.178	.469	.800
	Within Groups	233.297	614	.380		
	Total	234.187	619			

From the difference test using Anova (Table 7), there was no significant difference in students' physical activity based on their age, with an F value of 1.355 at a significance of 0.24 or $p > .05$. The same thing happened in their physical literacy test. From the analysis conducted with Anova, it was proven that there was no significant difference in physical literacy based on the age aspect of students, with an F value of 0.469 at a significance of 0.8 or $p > .05$.

Gender Group Difference Test

Table 8. Physical Activity and Physical Literacy by Gender

Variable/Gender	N	Mean	Std. Deviation
Physical Activity	Male	318	10.29
	Female	302	9.54
	Total	620	9.92
Physical Literacy	Male	318	3.92
	Female	302	3.83
	Total	620	3.87

From the gender aspect (table 8), Descriptive statistics revealed gender differences in physical activity and physical literacy. Male participants reported higher levels of physical activity ($M = 10.29$, $SD = 2.33$, $n = 318$) compared to female participants ($M = 9.54$, $SD = 2.09$, $n = 302$). Similarly, males demonstrated slightly higher physical literacy scores ($M = 3.92$, $SD = 0.64$) than females ($M = 3.83$, $SD = 0.59$). These descriptive findings suggest a trend toward higher physical engagement and competence among male participants, although inferential statistical testing is needed to determine whether these differences are statistically significant.



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Table 9. Results of Difference Test between Gender Groups

		Sum of Squares	df	Mean Square	F	Sig.
Physical Activity	Between Groups	87.801	1	87.801	17.870	.000
	Within Groups	3036.483	618	4.913		
	Total	3124.284	619			
Physical Literacy	Between Groups	1.092	1	1.092	2.896	.089
	Within Groups	233.095	618	.377		
	Total	234.187	619			

Difference test using Anova (Table 9), shows that there is a significant difference in students' physical activity in terms of gender with an F value of 17,870 at a significance of 0.000 or $p < 0.05$. While in the physical literacy test there is no significant difference with an F value of 2,896 at a significance of 0.089 or $p > 0.05$.

Testing the Theoretical Model

This study produces a theoretical model that explains the structural relationship between the following factors: physical literacy factors, physical activity, teacher competence, parenting styles, and social media. The model that has been built has observed variables for each latent variable, both exogenous and endogenous.

The relation of the structural model as constructed was then tested simultaneously using SEM. The results of the analysis prove that the theoretical model is coherent and corresponds to empirical data with coefficients $Cmin/df = 2.859$; $CFI = 0.944$; $GFI = 0.942$; $AGFI = 0.921$ and $RMSEA = 0.055$. The exogenous latent variable of teacher competence contributed by three observed variables has a coefficient of 0.923, 0.999, 1. The exogenous latent variable of parenting styles distributed by four observed variables has a coefficient of (-0.35) -1.710. The exogenous latent variable of social media distributed by three observed variables has a coefficient of 0.021-1. The endogenous latent variable of physical literacy distributed by three observed variables has a coefficient of 0.979-1.176. The endogenous latent variable of physical activity distributed by four observed variables has a coefficient of 0.518-1.652.



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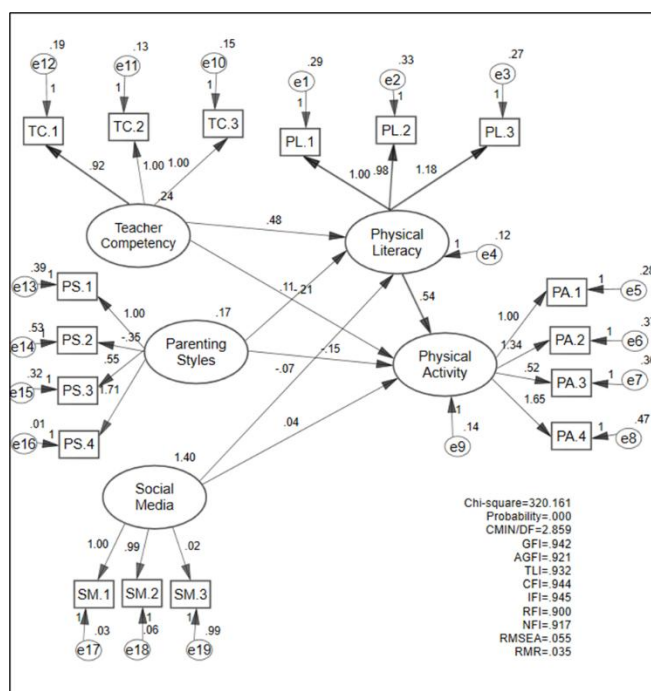


Figure 2. Theoretical Model 1 Structural Relations between Variables



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Table 10. Impact Coefficient of Exogenous Variables on Endogenous Variables in Theoretical Model 1

			Estimate	P
Physical_Literacy	<---	Teacher_Competency	.476	***
Physical_Literacy	<---	Parenting_Styles	.106	.033
Physical_Literacy	<---	Social_Media	-.069	***
Physical_Activity	<---	Teacher_Competency	-.207	***
Physical_Activity	<---	Parenting_Styles	-.154	.002
Physical_Activity	<---	Social_Media	.038	.029
Physical_Activity	<---	Physical_Literacy	.537	***
PL.1	<---	Physical_Literacy	1.000	
PL.2	<---	Physical_Literacy	.979	***
PL.3	<---	Physical_Literacy	1.176	***
TC.1	<---	Teacher_Competency	.923	***
PS.1	<---	Parenting_Styles	1.000	
PS.2	<---	Parenting_Styles	-.350	***
PS.3	<---	Parenting_Styles	.553	***
PS.4	<---	Parenting_Styles	1.710	***
PA.1	<---	Physical_Activity	1.000	
PA.2	<---	Physical_Activity	1.340	***
PA.3	<---	Physical_Activity	.518	***
PA.4	<---	Physical_Activity	1.652	***
TC.2	<---	Teacher_Competency	.999	***
TC.3	<---	Teacher_Competency	1.000	
SM.1	<---	Social_Media	1.000	
SM.2	<---	Social_Media	.994	***
SM.3	<---	Social_Media	.021	.553

Because in theoretical model 1 there is an observer variable (observed) that is not significant, namely the influence of information accessed on social media (SM3), further testing is needed by eliminating this variable. After simultaneous testing using SEM, a theoretical model 2 is obtained that is coherent and corresponds to empirical data with a coefficient of $C_{min}/df = 3.0$; CFI = 0.947; GFI = 0.943; AGFI = 0.920 and RMSEA = 0.057. All exogenous variables have a significant effect on endogenous variables, as well as between endogenous variables and other endogenous variables.



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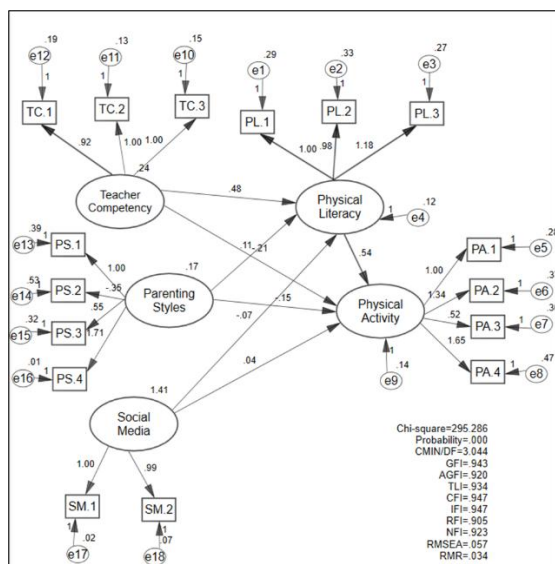


Figure 3. Theoretical Model 2 Structural Relations between Variables



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Table 11. Impact Coefficient of Exogenous Variables on Endogenous Variables in Theoretical Model 2

			Estimate	P
Physical_Literacy	<---	Teacher_Competency	.476	***
Physical_Literacy	<---	Parenting_Styles	.107	.032
Physical_Literacy	<---	Social_Media	-.069	***
Physical_Activity	<---	Teacher_Competency	-.207	***
Physical_Activity	<---	Parenting_Styles	-.155	.002
Physical_Activity	<---	Social_Media	.039	.027
Physical_Activity	<---	Physical_Literacy	.537	***
PL.1	<---	Physical_Literacy	1.000	
PL.2	<---	Physical_Literacy	.980	***
PL.3	<---	Physical_Literacy	1.176	***
TC.1	<---	Teacher_Competency	.923	***
PS.1	<---	Parenting_Styles	1.000	
PS.2	<---	Parenting_Styles	-.350	***
PS.3	<---	Parenting_Styles	.553	***
PS.4	<---	Parenting_Styles	1.709	***
PA.1	<---	Physical_Activity	1.000	
PA.2	<---	Physical_Activity	1.341	***
PA.3	<---	Physical_Activity	.518	***
PA.4	<---	Physical_Activity	1.652	***
TC.2	<---	Teacher_Competency	.999	***
TC.3	<---	Teacher_Competency	1.000	
SM.1	<---	Social_Media	1.000	
SM.2	<---	Social_Media	.987	***

From the results of the stage 2 test, it shows that all variables are significant, this can be seen from the p value <0.05 for three relations, namely the variable of parenting styles on students' physical literacy, social media on students' physical activity and the variable of parenting styles on students' physical activity. While the relationship between other variables is significant with a p value <0.01.



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Table 12. Direct effect, indirect effect, and total effect between variables

Endogenous Variables	Exogenous Variables														
	Teacher Competence			Parenting Style			Social Media			Physical Literacy			Physical Activity		
	DE	IE	TE	DE	IE	TE	DE	IE	TE	DE	IE	TE	DE	IE	TE
Physical Literacy	0.476**	-	0.476**	0.107*	-	0.107*	-	-	-	0.069**	-	-	-	-	-
Physical Activity	-	0.207**	0.256**	0.049**	-0.155*	0.057*	-0.097*	0.039*	-0.037*	0.002*	0.537**	0**	0.537**	-	-
SM.1	-	-	-	-	-	-	1**	-	1**	-	-	-	-	-	-
SM.2	-	-	-	-	-	-	0.987**	-	0.987**	-	-	-	-	-	-
TC.3	1**	-	1**	-	-	-	-	-	-	-	-	-	-	-	-
TC.2	0.999**	-	0.999**	-	-	-	-	-	-	-	-	-	-	-	-
PA.4	-	0.081**	0.081**	-	-	0.161**	-	0.003**	0.003**	-	0.887**	0.887**	1.652**	-	1.652**
PA.3	-	0.026**	0.026**	-	-0.05**	-0.05**	-	0.001**	0.001**	-	0.278**	0.278**	0.518**	-	0.518**
PA.2	-	0.066**	0.066**	-	-0.13**	-0.13**	-	0.002**	0.002**	-	0.72**	0.72**	1.341**	-	1.341**
PA.1	-	0.049**	0.049**	-	-	0.097**	-	0.002**	0.002**	-	0.537**	0.537**	1**	-	1**
PS.4	-	-	-	1.709**	-	1.709**	-	-	-	-	-	-	-	-	-
PS.3	-	-	-	0.553**	-	0.553**	-	-	-	-	-	-	-	-	-
PS.2	-	-	-	-0.35**	-	-0.35**	-	-	-	-	-	-	-	-	-
PS.1	-	-	-	1**	-	1**	-	-	-	-	-	-	-	-	-
TC.1	0.923**	-	0.923**	-	-	0**	-	-	-	-	-	-	-	-	-
PL.3	-	0.56**	0.56**	-	0.125**	0.125**	-	0.081**	0.081**	1.176**	-	1.176**	-	-	-
PL.2	-	0.467**	0.467**	-	0.105**	0.105**	-	0.067**	0.067**	0.98**	-	0.98**	-	-	-
PL.1	-	0.476**	0.476**	-	0.107**	0.107**	-	0.069**	0.069**	1**	-	1**	-	-	-

The teacher competency variable has a direct effect on the student's physical literacy variable with a coefficient of 0.48 with a p value <0.05 and also has a direct and indirect effect on the student's physical activity variable through the student's physical literacy variable with a coefficient of -0.21 and 0.25 with a p value <0.05. The parenting styles variable has a direct effect on the student's physical literacy variable with a coefficient of 0.11 with a p value <0.05 and has a direct and indirect effect on the student's physical activity variable through the student's physical literacy variable with a coefficient of -0.15 and 0.057 with a p value <0.05. The social media variable has a direct effect on the student's physical literacy variable with a coefficient of -0.07 with a p value <0.05 and has a direct and indirect effect on the student's physical activity variable through the student's physical literacy variable with a coefficient of 0.04 and -0.04 with a

Original article. The influence of teacher competency, parenting styles, and social media on students' physical literacy and physical activity. Vol. 12, n. ° 3; p. 1-24, July 2026.

<https://doi.org/10.55040/q37j5171>

p value <0.05. Meanwhile, the student's physical literacy variable has a significant effect on student physical activity of 0.54 with a p value <0.05.

Discussion

This study has found a theoretical model that explains the structural relationship between teacher competency variables, parenting style, social media factors, physical literacy and students' physical activity. Teacher competency variables have a direct effect on physical literacy. The results of this study are in line with previous studies that physical education teachers can improve their students' physical literacy if they apply the principles of pedagogy, personality, and professional competence in learning (Yıldizer & Munusturlar, 2022). Teacher competence is an important factor in promoting integrative behavior by utilizing interactive and integrated teaching strategies so that it can increase student motivation in Physical Education (Channa & Sahito, 2022). It is important for teachers to motivate students to provide more positive experiences (Cents-Boonstra et al., 2021) which ultimately impacts student health (Nahid et al., 2023). Along with motivating students, teachers must also pay attention to positive behavior and attitudes, namely effective communication, competence and professional dedication to make students more confident, motivated, and satisfied with their learning and more likely to trust their teachers (De Loof et al., 2021).

Teacher competency variables have a direct effect on physical activity (Del Pilar, 2023). Based on the results of this study, there is a negative relationship between teacher competency and students' physical activity. This is related to the activeness of students during physical education lessons. This study found that this negative relationship is related to the low physical activity of students while at school, both during physical education lessons and during breaks. It is strongly suspected that students feel bored and tend not to like tiring physical activities due to teachers who are not creative when teaching, this affects students' attitudes towards physical education because they prefer to play rather than study physical education as a subject (Baños et al., 2020). In addition to increasing students' physical activity through physical education, it is important for teachers to intervene during breaks where teachers can reconstruct the classroom and



Original article. The influence of teacher competency, parenting styles, and social media on students' physical literacy and physical activity. Vol. 12, n. ° 3; p. 1-24, July 2026.

<https://doi.org/10.55040/q37j5171>

school environment to reduce students' sitting time so that they can ultimately increase their physical activity (Ha et al., 2017).

Teacher competence also has an indirect effect on physical activity through physical literacy (Durden-Myers & Keegan, 2019). This is one way for physical education teachers to improve students' physical literacy by improving their knowledge, skills, and physical competence because physical literacy is positively related to physical activity (Silverman & Mercier, 2015).

Parenting styles have a direct effect on physical literacy variables. This study revealed the fact that around 80% of parents apply authoritative parenting styles based on their children's assessments. Factors of togetherness with children, providing understanding, respecting opinions, implementing appropriate rules along with their consequences and logical expectations and giving praise are the most dominant aspects in influencing parenting styles, this leads to authoritative parenting styles. The findings of this study are in line with previous studies that parenting styles that implement parental involvement in providing advice and actively engaging together with their children can affect their children's physical literacy and reduce inactive behavior (Vega-Díaz et al., 2023). Other studies explain that authoritative parenting styles also affect achievement motivation in sports (Gao et al., 2023).

Parenting styles also have a direct or indirect effect on physical activity through students' physical literacy. In this study, a negative relationship was found between parenting styles and physical activity. From the data obtained on the level of physical activity of students, it is included in the low to moderate category, especially in terms of physical activity outside of school. It is very important for parents to actively participate in their physical activity because parents can influence their children's physical activity through modeling and providing full support.

The findings of this study support previous research on parental involvement that contributes to children's participation in physical activity (Kovács et al., 2024), this is in accordance with Bandura's modeling theory (Schunk & DiBenedetto, 2023) that children learn by looking at models and parents are the main models for a child in their family environment. Other studies have shown that adolescents aged 14 to 17 years who have parents who are physically active in the past and present are six times more likely to be



Original article. The influence of teacher competency, parenting styles, and social media on students' physical literacy and physical activity. Vol. 12, n. ° 3; p. 1-24, July 2026.

<https://doi.org/10.55040/q37j5171>

physically active than adolescents who do not have parents who have ever been physically active (Hills et al., 2011). Another factor that has an impact on children's physical activity is parental supervision (Cai et al., 2022), considering that nowadays children and adolescents spend a lot of their time in front of the screen (playing cellphones), this has an impact on sedentary behavior so that their physical activity decreases.

Social media directly has a significant effect on physical literacy and physical activity of students. The results of this study reveal a negative correlation between social media and physical literacy directly and physical activity indirectly, meaning that the higher the use of social media, the lower the level of physical activity and physical literacy of students. This shows that the use of social media, in addition to having a positive impact, can also have a negative impact. The findings of this study support previous research on the influence of social media on physical activity involvement which shows that excessive use of social media can lead to sedentary behavior and decreased levels of physical activity, especially among adolescents and young adults (Goodyear et al., 2021). The results of this study are also relevant to the 2023 sports development index report where children aged 10-15 years and adolescents aged 16-30 years show that there are still around 65% of Indonesian children and youth whose frequency of physical activity is still relatively low or does not meet the principle of adequate movement.

The role of teachers and parents is very important in overcoming mobile phone addiction in children and adolescents. Physical education teachers must have innovation and creativity in the learning process, for example, utilizing mobile phones, especially those related to social media, so that they can be integrated into the process of delivering material and movement tasks to students. Previous research explains that digitally competent physical education teachers can increase success in their classes (Wallace et al., 2023). Social media can be an effective tool for fostering values and lifestyles such as physical activity through content with the right information and models and increasing awareness of its negative impacts. This means that teachers can utilize social media that is integrated with the learning process with proper intervention planning (Jankauskaitė, 2019).

The change in the behavior of Indonesian children and adolescents who are less active outside of leisure to playing mobile phones is very worrying. If there is no



Original article. The influence of teacher competency, parenting styles, and social media on students' physical literacy and physical activity. Vol. 12, n. ° 3; p. 1-24, July 2026.

<https://doi.org/10.55040/q37j5171>

intervention from parents, it will have a negative impact on health in the future. Previous research on the perspectives of parents and teachers expressed concerns about children's health, privacy, and formal learning in terms of excessive exposure to social media technology (Hammond et al., 2024). Other studies emphasize the importance of strategies to focus on parental and peer support as an integral part of intervention programs designed to increase physical activity in adolescents in middle and high schools (Sartore et al., 2013). With the emergence of digital devices that encourage sedentary behavior and have the potential to harm physical, mental health, and overall well-being, excessive screen time is becoming an increasing problem in modern society. Parents and teachers should reduce the time spent playing mobile phones, especially for children and adolescents, and integrate physical activity and physical literacy into daily interactions.

Conclusion

After conducting an in-depth study based on data analysis and discussion of research results, the researcher came to the conclusion that the theoretical model explaining the structural relationship between teacher competence, parenting styles, and social media on physical literacy and physical activity of students is coherent and in accordance with objective reality with empirical data. In detail, the conclusions of this study can be stated as follows.

1. Teacher competence has a significant effect on physical literacy and physical activity of students.
2. Authoritative parenting is the dominant parenting style used by parents
3. There is a negative correlation between social media and physical literacy and physical activity. The higher the use of social media, the lower the level of physical activity and physical literacy of students.
4. Physical literacy of students is more dominated by the knowledge aspect compared to physical competence and attitude aspects. There is no significant difference in terms of physical literacy, both in terms of age and gender.



Original article. The influence of teacher competency, parenting styles, and social media on students' physical literacy and physical activity. Vol. 12, n. ° 3; p. 1-24, July 2026.

<https://doi.org/10.55040/q37j5171>

5. Children's physical activity is more dominated by the intensity aspect compared to frequency and physical activity outside school is higher than physical activity at school.

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